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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 0429

Application Number: 09/841,486
Filing Date: April 25, 2001
Appellant(s): IWASA ET AL.

Jennifer M. Hayes
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 02/23/2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-6, 8-11, and 13-19.

Claims 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7 and 12 have been canceled.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows:

1. Whether the rejections of claims 1-6, 8-11, and 13-19 under 35 U.S.C. 102(b) over Suzuki et al should be reversed.

2. Whether the Examiner has made a *prima facie* showing of obviousness of claims 10 and 11 under 35 U.S.C 103(a).

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-6, 8-11, and 13-19 stand or fall together.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,059,630	FUJITA et al	10-1991
4,686,118	ARAI et al	08-1987
4,506,037	SUZUKI et al	03-1985

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

I. Claims 1-9, and 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al (US 4,506,037).

It appears that the claims do not require the presence of the inorganic and organic fine powders since the composition used to prepared the stretched porous film as recited in claim 1 requires 0 to 70% by weight of at least one of an inorganic fine powder and an organic fine powder. Therefore, any limitations associated with the inorganic and organic fine powders would be excluded from

the claims. It is noted that Appellant intends to exclude water from the composition for making a stretched porous film in view of the language "consisting essentially of". Suzuki uses water as a blowing agent to create the voids in the film; however, water was evaporated during the drying, heating steps and the final product of Suzuki does not contain any water. Thus, "consisting essentially of" does not exclude Suzuki. Suzuki discloses that the foamed sheet is suitable for use as a cushioning material by vacuum forming or pressure forming (column 9, lines 14-16). Likewise, it is clearly apparent that the cushioning material of Suzuki would not contain any water for its sufficient performance. Suzuki discloses the resin foam comprising about 50 % by weight of the thermoplastic resin such as polyethylene or polypropylene resin (examples 2 and 3). Suzuki discloses that the resin foam comprises fine hydrophilic solid powders being powders of hydrophilic resins such as urea resins, melamine resins and phenolic resins (column 2, lines 62-63). Suzuki discloses that the proportion of the powders of hydrophilic resin is about 80 to 120 parts by weight per 100 parts by weight of the thermoplastic resin within the claimed range. The resin foam comprises an inorganic fine powder having an average particle size of 1.8 microns (example 3) within the claimed range. The extruded sheet is stretched (column 10, lines 25-27). The resin foam has the skin layer on its surface (column 9, lines 8-10). It is noted that the expansion ratio is defined as the ratio of the resin density to expanded product density.

Expansion ratio = resin density/expanded product density

Porosity= (resin density-expanded product density)/resin density x 100

Porosity = (1- (expanded product density/resin density)) x 100

Porosity = (1-1/expansion ratio) x 100

When the expansion ratio is 9.8 (column 9, line 13), the calculated porosity will be approximately 90%, meeting the specific range required by the claims.

The foamed cells have a diameter in the range of 0.1 to 0.3 mm or $1x10^{-4}$ to $3x10^{-4}$ m. Likewise, the area of the each cell is at least of 0.785 $x10^{-8}$ m2 (r^2xPi). The resin foam is expected to have the number of cells per m2 at least of $1/(0.785\ x10^{-8})$ or $1.27x10^{8}$ on the surface thereof within the claimed range. Suzuki does not specifically disclose the shear rate at which the composition is entered in an extruder, liquid absorbing capacity and the contact angle of the resin foam. However, the shear rate is a product-by-process limitation not as yet shown to produce a patentably distinct article when compared with the products of Suzuki. The pores are generated in the Suzuki film by a combination of using water as a blowing agent and stretching an inorganically filled film whereas the matrix material is stretched to form the pores around the inorganic particles in accordance with Appellant's process. Suzuki and Appellant appears to use two different processes for making the porous resin film, therefore, the shear rate may be critical to Appellant's process but clearly not critical to Suzuki's procedure since the physical attributes of the pore size and number of the pores as well as dispersion are apparently achieved by Suzuki. Further, no evidence of record is found to establish the criticality of such shear rate to prevent the Suzuki resin foam from attaining the liquid absorbing capability as recited in the claims. Most

importantly, the composition and physical form of Suzuki is similar to that of the claimed invention. The resin foam comprises about 50 % by weight of the thermoplastic resin such as polyethylene or polypropylene resin and powders of hydrophilic resins such as urea resins, melamine resins and phenolic resins. The proportion of the powders of hydrophilic resin is about 80 to 120 parts by weight per 100 parts by weight of the thermoplastic resin within the claimed range. The resin foam is stretched. The Suzuki resin foam is prepared by kneading as recited in the claims. The resin foam further has the porosity and number of pores per m2 within the claimed range. The inorganic powders have the particle size within the claimed range. Therefore, it is not seen that the resin foam would have been performed differently from the porous resin film of the present invention in terms of liquid absorbing capacity. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete. This is in line with ***In re Spada***, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties.

In addition, the contact angle with water is related to the amount of the hydrophilic thermoplastic resin used in the composition and the surface area. Suzuki discloses the amount of the hydrophilic resin as well as the surface porosity within the claimed ranges, it is the examiner's position that the contact angle with water of the resin foam would be inherently present. This is in line with ***In re Spada***. Like composition has like properties. It is the examiner's position that Suzuki anticipates the claimed subject matter.

II. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 4,506,037) as applied to claim 1, further in view of Arai et al (US 4,686,118).

See above comments for this section. Suzuki teaches the resin foam comprising a non-hydrophilic resin and hydrophilic resin wherein the hydrophilic resin can be melamine resin, phenolic resin (column 2, line 63). Suzuki does not specially disclose the hydrophilic powder being an alkylene oxide polymer. Arai teaches the film made of a mixuture of non-hydrophilic resin and hydrophilic resin wherein the hydrophilic resin being an alkylene oxide polymer (column 3, lines 55-65). In view of Arai, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an alkylene oxide polymer as the hydrophilic powder of the Suzuki invention because of its ready availability and economic advantage.

Alternatively, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an alkylene oxide polymer as the hydrophilic powder of the Suzuki invention since an alkylene oxide polymer and melamine resin have been shown in the art to recognized equivalent hydrophilic resin which is compatible with the non-hydrophilic resin.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 4,506,037) in view of Arai et al (US 4,686,118) as applied to claim 10 above, further in view of Fujita et al (US 5,059,630).

The combination of the Suzuki and Arai fails to teach the alkylene oxide polymer is a reaction product of an alkylene oxide compound and a dicarboxylic

acid compound. Fuji teaches the alkylene oxide polymer is a reaction product of an alkylene oxide compound and a dicarboxylic acid compound (column 4, lines 6-14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an alkylene oxide polymer as a reaction product of an alkylene oxide compound and a dicarboxylic acid compound because of its practical and economical method of preparing the alkylene oxide polymer.

(11) Response to Argument

Examiner's comments regarding Appellant's issue I :

Appellant argues that the Suzuki invention relates to production of resin foam by an aqueous medium whereas the present invention does not use an aqueous medium. It appears that water as a blowing agent in the Suzuki invention was evaporated during the drying, heating steps and the final product of Suzuki does not contain any water. Thus, "consisting essentially of" does not exclude Suzuki. Suzuki discloses that the foamed sheet is suitable for use as a cushioning material by vacuum forming or pressure forming (column 9, lines 14-16). Likewise, it is clearly apparent that the cushioning material of Suzuki would not contain any water for its sufficient performance. Appellant argues that roughness is observed in the surface and inside of the porous film when the resin composition contains moisture in an amount of 400 ppm. The arguments are not commensurate in scope with the claims since nothing about the roughness has been included in the claims. Appellant argues that Suzuki does not disclose the composition as recited in the claims. The examiner disagrees. Suzuki discloses

the resin foam comprising about 50 % by weight of the thermoplastic resin such as polyethylene or polypropylene resin (examples 2 and 3). Suzuki discloses that the resin foam comprises fine hydrophilic solid powders being powders of hydrophilic resins such as urea resins, melamine resins and phenolic resins (column 2, lines 62-63). Suzuki discloses that the proportion of the powders of hydrophilic resin is about 80 to 120 parts by weight per 100 parts by weight of the thermoplastic resin within the claimed range. The resin foam comprises an inorganic fine powder having an average particle size of 1.8 microns (example 3) within the claimed range. The extruded sheet is stretched (column 10, lines 25-27). The composition is prepared by kneading (abstract). The resin foam has the skin layer on its surface (column 9, lines 8-10). The resin foam has the porosity and number of pores per m2 on the surface thereof within the claimed ranges. Therefore, it is not seen that the resin foam would have been performed differently from the porous resin film of the present invention in terms of liquid absorbing capacity. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete. This is in line with ***In re Spada***, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. In addition, the contact angle with water is related to the amount of the hydrophilic thermoplastic resin used in the composition and the surface area. Suzuki discloses the amount of the hydrophilic resin and surface porosity within the claimed ranges, it is the examiner's position that the contact angle with water of the resin foam would be inherently present. This is in line with ***In re Spada***. Like composition has like

properties. The examiner agrees that the process disclosed in the Suzuki invention is not the same as the procedure of the present invention. Therefore, the shear rate as a product-by-process limitation may be critical to Appellant's process but clearly not critical to providing the technical advantage in accordance with Suzuki's procedure since the physical attributes of pore size and surface porosity as well as dispersion are apparently achieved by Suzuki. Further, no evidence of record is found to show the criticality of such shear rate to prevent the Suzuki resin foam from attaining the liquid absorbing capability as recited in the claims. Since the composition and physical form of Suzuki is the same as in the presently claimed invention, the recited liquid absorption is an inherent property. Appellant goes on and states that the hydrophilic resins such as urea resins, melamine resins and phenolic resins do not substantially melt at the melting temperature of the kneaded thermoplastic resin. The arguments are not found persuasive for patentability. In the first place, Suzuki does not limit the hydrophilic resins to only three resins as disclosed in the reference. Secondly, the hydrophilic resins do melt at the melting temperature of the kneaded thermoplastic resin (abstract). Appellant argues that the foam resin of Suzuki is not stretched. The examiner disagrees. Suzuki discloses that the resin foam was of a closed cellular structure and had directionality as a result of stretching (column 10, lines 25-30). Further, Appellant argues that the foam sheet of Suzuki has an expansion ratio of 7.5 to 16, having a greater of air layers than that of the foam sheet of the present invention. Therefore, it is expected that it is more difficult to stretch a foam sheet of Suzuki. Again the arguments are not

commensurate in scope with the claims. Nothing specific about the expansion ratio is included in the claims. Further, the claims appear to require the film being stretched but not require how far the film can be stretched to differentiate the porous film of the present invention over the prior art. Accordingly, Suzuki broadly reads on the claim limitations. The art rejections are thus sustained.

Examiner's comments regarding Appellant's issue II :

Appellant argues that one of ordinary skill in the art would not have had a reasonable expectation of achieving the claimed invention based upon the combination of Suzuki and Arai. The arguments are not found persuasive. Suzuki teaches the resin foam comprising a non-hydrophilic resin and hydrophilic resin wherein the hydrophilic resin can be melamine resin, phenolic resin (column 2, line 63). Suzuki does not specially disclose the hydrophilic powder being an alkylene oxide polymer. Arai teaches the film made of a mixture of non-hydrophilic resin and hydrophilic resin wherein the hydrophilic resin being an alkylene oxide polymer (column 3, lines 55-65). In view of Arai, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an alkylene oxide polymer as the hydrophilic powder of the Suzuki invention because of its ready availability and economic advantage. Alternatively, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an alkylene oxide polymer as the hydrophilic powder of the Suzuki invention since an alkylene oxide polymer and melamine resin have been shown in the art to recognized equivalent hydrophilic resin which is compatible with the non-hydrophilic resin.

Appellant reiterated positions taken with respect to the rejections of claim 11 and the examiner's comments set forth above are equally pertinent in the support of these rejections as well.

Examiner's comments regarding Appellant's issue III:

Appellant argues that the phrase "consisting essentially of" would exclude the aqueous medium used as a blowing agent in the Suzuki reference. However, the water in the resin foam was evaporated during the drying, heating steps and the final product of Suzuki does not contain any water. Suzuki discloses that the foamed sheet is suitable for use as a cushioning material by vacuum forming or pressure forming (column 9, lines 14-16). Likewise, it is clearly apparent that the cushioning material of Suzuki would not contain any water for its sufficient performance. Accordingly, the Suzuki final product does not contain water either. Appellant argues Suzuki does not disclose the claimed amount of the hydrophilic resin. The examiner disagrees. Suzuki discloses that the resin foam comprises fine hydrophilic solid powders being powders of hydrophilic resins such as urea resins, melamine resins and phenolic resins (column 2, lines 62-63). Suzuki discloses that the proportion of the powders of hydrophilic resin is about 80 to 120 parts by weight per 100 parts by weight of the thermoplastic resin within the claimed range. In the amendment after final filed on 08/21/03 Appellant argues that the polyethylene glycol disclosed in example 2 of Suzuki corresponds to the claimed hydrophilic resin and its amount is not within the claimed range. Therefore, the ink absorption is not an inherent property. The examiner confirms that polyethylene glycol as a surface surfactant listed in example 2 of Suzuki is

not relied on as the claimed hydrophilic resin as argued by Appellant. Therefore, the non-inherency arguments are not found persuasive. Appellant goes on and argues that Suzuki does not disclose the shear rate, liquid absorption and degree of stretching as recited in the claims. It is believed that the examiner's comments set forth above are equally pertinent in the support of these issues.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

HV
May 3, 2004

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